

Committee: Education, Health, and Environmental Affairs
Testimony on: SB 300 - “Pesticides – Use of Chlorpyrifos – Prohibition”
Position: Support
Hearing Date: February 11, 2020

The Maryland Sierra Club submits this testimony to strongly urge this committee to issue a favorable report on SB300, a bill to ban the use of chlorpyrifos, a neurotoxin pesticide.

Chlorpyrifos is used to kill, repel, or control pests. It is in the organophosphate (OP) class of chemicals. To protect the public, chlorpyrifos is now banned for most residential use, however, it continues to be used in agriculture, including on corn, soybeans, fruit trees, row vegetable crops, and also is used on golf courses and turf, as a mosquito adulticide, and for roach and ant bait stations.¹ In 2016, with over 30 years of data, EPA scientists determined that the chemical should be completely banned, however, the EPA then reversed course when the Trump administration came into office. Thus, this highly neurotoxic pesticide continues to be used in Maryland – forcing Marylanders to regularly come into contact with it through chemical residue on food, contaminated drinking water, and tainted air.

Chlorpyrifos assaults the health of Maryland families in both urban and rural communities – its use especially places an unacceptable burden of harm on our most vulnerable populations including pregnant women, the unborn, infants and children, and on farmworkers who are exposed to the chemical.

Mechanism of action and target species – OPs’ poisonous action doesn’t discriminate between species – they block the action of a brain enzyme that’s critical to the normal activity of the central nervous system, causing a malfunction in the nervous system through overstimulation.² Poisoning from chlorpyrifos also affects the cardiovascular and respiratory systems, skin, and eyes. It is acutely toxic to bees and beneficial insects, birds, aquatic life, soil organisms, and mammals, including human adults, children, and fetuses.³

Acute and long-term health effects – The EPA states that OPs are absorbed by inhalation, ingestion, and dermal penetration. Acute exposure can result in symptoms of uncontrolled muscle contraction and secretions, sensory and behavioral disturbances, loss of motor coordination, depressed motor function, hypertension, seizures, psychiatric symptoms such as depression, memory loss and confusion, and respiratory depression or respiratory failure leading to death.⁴ Chronic exposure to OPs can cause the same effects as seen in acute exposure, but also includes impairment of memory, speech loss, and impaired judgment.⁵

Chlorpyrifos is especially a menace to Maryland’s children because, like lead, it impairs children’s cognition with lasting effects. At standard use levels, it is associated with neurodevelopmental defects, including autism, ADHD, and lowered IQ in children and fetuses.^{6,7,8,9}

The cost of not taking action is immense – The continued use of chlorpyrifos comes with a high dollar price tag for Maryland families and taxpayers resulting from the health and economic risks and consequences, and the long-term health harms.

Recently, researchers at the New York University Grossman School of Medicine determined that OP-attributable IQ loss and intellectual disability have increased.¹⁰ The research concluded that US children’s exposure to certain environmental chemicals resulted in millions of lost IQ points, hundreds of thousands of cases of intellectual disability, and \$7.5 trillion in lost economic productivity and societal costs. The class

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of OP pesticides to which chlorpyrifos belongs was found to be the second greatest contributor to cognitive loss and intellectual disabilities. The impacts of OP exposure appear roughly on par with lead exposure. Prenatal exposure represents a critical window when these effects can be particularly pronounced and long-lasting damage. Each case of intellectual disability was estimated to result in \$1,272,470 in lost productivity and medical costs.

The science is clear, chlorpyrifos is too toxic for Maryland. Maryland families deserve protection from chlorpyrifos. We urge you to support this legislation.

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Sources:

¹ US EPA. July 2019. "Chlorpyrifos." www.epa.gov/ingredients-used-pesticide-products/chlorpyrifos#basic

² Adeyinka A, Pierre L. Organophosphates. In: StatPearls [Internet]. StatPearls Publishing. May 2019. ncbi.nlm.nih.gov/books/NBK499860/

³ National Pesticide Information Center. 2010. "Chlorpyrifos." npic.orst.edu/factsheets/chlorpgen.html

⁴ Roberts, J, Reigart, J. Recognition and Management of Pesticide Poisonings, 6th Edition." 2013. US EPA Office of Pesticide Programs. p.43- 55

⁵ Adeyinka.

⁶ von Ehrenstein Ondine S, et al. "Prenatal and infant exposure to ambient pesticides and autism spectrum disorder in children: population based case-control study." *BMJ* 2019; 364 :l962 bmj.com/content/364/bmj.l962

⁷ Dalsager L, et al. "Maternal urinary concentrations of pyrethroid and chlorpyrifos metabolites and attention deficit hyperactivity disorder (ADHD) symptoms in 2-4-year-old children from the Odense Child Cohort." *Environmental Research*. 2019 Sep;176:108533. DOI: 10.1016/j.envres.2019.108533.

⁸ Bouchard M, et al. "Attention-deficit/hyperactivity disorder and urinary metabolites of organophosphate pesticides." *Pediatrics* vol. 125,6 (2010): e1270-7. doi:10.1542/peds.2009-3058

⁹ Rauh V, et al. "Brain anomalies and pesticide exposure." *Proceedings of the National Academy of Sciences*. May 2012. 109 (20) 7871-7876; DOI: 10.1073/pnas.1203396109

¹⁰ Gaylord A, et al. "Trends in neurodevelopmental disability burden due to early life chemical exposure in the USA from 2001 to 2016: A population-based disease burden and cost analysis." *Molecular and Cellular Endocrinology*. February 2020.

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